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Sequence Listing was accepted.

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217-9197 (toll free).

Reviewer: Durreshwar Anjum

Timestamp: [year=2010; month=11; day=23; hr=13; min=16; sec=25; ms=443;  
]

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Application No: 10723908 Version No: 4.0

Input Set:

Output Set:

**Started:** 2010-11-15 17:50:32.116  
**Finished:** 2010-11-15 17:50:35.803  
**Elapsed:** 0 hr(s) 0 min(s) 3 sec(s) 687 ms  
**Total Warnings:** 59  
**Total Errors:** 0  
**No. of SeqIDs Defined:** 59  
**Actual SeqID Count:** 59

| Error code | Error Description                                |
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| W 402      | Undefined organism found in <213> in SEQ ID (1)  |
| W 402      | Undefined organism found in <213> in SEQ ID (2)  |
| W 402      | Undefined organism found in <213> in SEQ ID (3)  |
| W 402      | Undefined organism found in <213> in SEQ ID (4)  |
| W 402      | Undefined organism found in <213> in SEQ ID (5)  |
| W 402      | Undefined organism found in <213> in SEQ ID (6)  |
| W 402      | Undefined organism found in <213> in SEQ ID (7)  |
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| W 402      | Undefined organism found in <213> in SEQ ID (9)  |
| W 402      | Undefined organism found in <213> in SEQ ID (10) |
| W 402      | Undefined organism found in <213> in SEQ ID (11) |
| W 402      | Undefined organism found in <213> in SEQ ID (12) |
| W 402      | Undefined organism found in <213> in SEQ ID (13) |
| W 402      | Undefined organism found in <213> in SEQ ID (14) |
| W 402      | Undefined organism found in <213> in SEQ ID (15) |
| W 402      | Undefined organism found in <213> in SEQ ID (16) |
| W 402      | Undefined organism found in <213> in SEQ ID (17) |
| W 402      | Undefined organism found in <213> in SEQ ID (18) |
| W 402      | Undefined organism found in <213> in SEQ ID (19) |
| W 402      | Undefined organism found in <213> in SEQ ID (20) |

**Input Set:**

**Output Set:**

**Started:** 2010-11-15 17:50:32.116  
**Finished:** 2010-11-15 17:50:35.803  
**Elapsed:** 0 hr(s) 0 min(s) 3 sec(s) 687 ms  
**Total Warnings:** 59  
**Total Errors:** 0  
**No. of SeqIDs Defined:** 59  
**Actual SeqID Count:** 59

| Error code | Error Description   |
|------------|---|
|            | This error has occurred more than 20 times, will not be displayed |
| W 213      | Artificial or Unknown found in <213> in SEQ ID (32)               |
| W 213      | Artificial or Unknown found in <213> in SEQ ID (33)               |
| W 213      | Artificial or Unknown found in <213> in SEQ ID (34)               |
| W 213      | Artificial or Unknown found in <213> in SEQ ID (35)               |
| W 213      | Artificial or Unknown found in <213> in SEQ ID (36)               |
| W 213      | Artificial or Unknown found in <213> in SEQ ID (37)               |
| W 213      | Artificial or Unknown found in <213> in SEQ ID (38)               |
| W 213      | Artificial or Unknown found in <213> in SEQ ID (39)               |
| W 213      | Artificial or Unknown found in <213> in SEQ ID (40)               |
| W 213      | Artificial or Unknown found in <213> in SEQ ID (41)               |
| W 213      | Artificial or Unknown found in <213> in SEQ ID (42)               |
| W 213      | Artificial or Unknown found in <213> in SEQ ID (43)               |
| W 213      | Artificial or Unknown found in <213> in SEQ ID (44)               |
| W 213      | Artificial or Unknown found in <213> in SEQ ID (45)               |
| W 213      | Artificial or Unknown found in <213> in SEQ ID (46)               |
| W 213      | Artificial or Unknown found in <213> in SEQ ID (48)               |
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|            | This error has occurred more than 20 times, will not be displayed |



# SEQUENCE LISTING

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ANDERSEN, Peter

SKJOT, Rikke Louise Vinther

<120> TUBERCULOSIS VACCINE AND DIAGNOSTICS BASED ON THE MYCOBACTERIUM  
TUBERCULOSIS SAT-6 GENE FAMILY

<130> 0459-0752P

<140> 10723908

<141> 2010-11-15

<160> 59

<170> PatentIn 2.0

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<211> 100

<212> PRT

<213> M. tuberculosis

<400> 1

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Glu Ser Thr Ala Gly Ser Leu Gln Gly Gln Trp Arg Gly Ala Ala Gly
      35           40           45
Thr Ala Ala Gln Ala Ala Val Val Arg Phe Gln Glu Ala Ala Asn Lys
      50           55           60
Gln Lys Gln Glu Leu Asp Glu Ile Ser Thr Asn Ile Arg Gln Ala Gly
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Val Gln Tyr Ser Arg Ala Asp Glu Glu Gln Gln Gln Ala Leu Ser Ser
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Gln Met Gly Phe
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<211> 95

<212> PRT

<213> M. tuberculosis

<400> 2

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Lys Gln Ser Leu Thr Lys Leu Ala Ala Ala Trp Gly Gly Ser Gly Ser
      35           40           45
Glu Ala Tyr Gln Gly Val Gln Gln Lys Trp Asp Ala Thr Ala Thr Glu
      50           55           60
Leu Asn Asn Ala Leu Gln Asn Leu Ala Arg Thr Ile Ser Glu Ala Gly
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<213> M. tuberculosis

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35 40 45  
Ile Thr Tyr Gln Ala Trp Gln Ala Gln Trp Asn Gln Ala Met Glu Asp  
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Ala Phe Ala Ala Lys Ala Gly Leu Met Arg His Thr Ile Gly Gln Ala  
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gag cag gcg gcg atg tcg gct cag gcg ttt cac cag ggg gag tcg tcg 144  
Glu Gln Ala Ala Met Ser Ala Gln Ala Phe His Gln Gly Glu Ser Ser  
35 40 45  
gcg gcg ttt cag gcc gcc cat gcc cgg ttt gtg gcg gcg gcc gcc aaa 192  
Ala Ala Phe Gln Ala Ala His Ala Arg Phe Val Ala Ala Ala Ala Lys  
50 55 60  
gtc aac acc ttg ttg gat gtc gcg cag gcg aat ctg ggt gag gcc gcc 240  
Val Asn Thr Leu Leu Asp Val Ala Gln Ala Asn Leu Gly Glu Ala Ala  
65 70 75 80  
ggg acc tat gtg gcc gcc gat gct gcg gcc gcg tcg acc tat acc ggg 288  
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85 90 95  
ttc tga 294

Phe

<210> 5

<211> 97

<212> PRT

<213> M. tuberculosis

<400> 5

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| Met | Ser | Leu | Leu | Asp | Ala | His | Ile | Pro | Gln | Leu | Val | Ala | Ser | Gln | Ser |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Ala | Phe | Ala | Ala | Lys | Ala | Gly | Leu | Met | Arg | His | Thr | Ile | Gly | Gln | Ala |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Glu | Gln | Ala | Ala | Met | Ser | Ala | Gln | Ala | Phe | His | Gln | Gly | Glu | Ser | Ser |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Ala | Ala | Phe | Gln | Ala | Ala | His | Ala | Arg | Phe | Val | Ala | Ala | Ala | Ala | Lys |
|     | 50  |     |     |     |     | 55  |     |     |     | 60  |     |     |     |     |     |
| Val | Asn | Thr | Leu | Leu | Asp | Val | Ala | Gln | Ala | Asn | Leu | Gly | Glu | Ala | Ala |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |
| Gly | Thr | Tyr | Val | Ala | Ala | Asp | Ala | Ala | Ala | Ala | Ser | Thr | Tyr | Thr | Gly |
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Phe

<210> 6

<211> 339

<212> DNA

<213> M. tuberculosis

<220>

<221> CDS

<222> (1)...(339)

<400> 6

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| ttg | atc | ccc | ggt | cgg | atg | gtg | ctg | aac | tgg | gaa | gat | ggc | ctc | aat | gcc | 48  |
| Leu | Ile | Pro | Gly | Arg | Met | Val | Leu | Asn | Trp | Glu | Asp | Gly | Leu | Asn | Ala |     |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |     |
| ctt | gtt | gcg | gaa | ggg | att | gag | gcc | atc | gtg | ttt | cgt | act | tta | ggc | gat | 96  |
| Leu | Val | Ala | Glu | Gly | Ile | Glu | Ala | Ile | Val | Phe | Arg | Thr | Leu | Gly | Asp |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |     |
| cag | tgc | tgg | ttg | tgg | gag | tcg | ctg | ctg | ccc | gac | gag | gtg | cgc | cga | ctg | 144 |
| Gln | Cys | Trp | Leu | Trp | Glu | Ser | Leu | Leu | Pro | Asp | Glu | Val | Arg | Arg | Leu |     |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |     |
| ccc | gag | gaa | ctg | gcc | cgg | gtg | gac | gca | ttg | ttg | gac | gat | ccg | gcg | ttc | 192 |
| Pro | Glu | Glu | Leu | Ala | Arg | Val | Asp | Ala | Leu | Leu | Asp | Asp | Pro | Ala | Phe |     |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |     |
| ttc | gcc | ccg | ttc | gtg | ccg | ttc | ttc | gac | ccg | cgc | agg | ggc | cgg | ccg | tcg | 240 |
| Phe | Ala | Pro | Phe | Val | Pro | Phe | Phe | Asp | Pro | Arg | Arg | Gly | Arg | Pro | Ser |     |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |     |
| acg | ccg | atg | gag | gtc | tat | ctg | cag | ttg | atg | ttt | gtg | aag | ttc | cgc | tac | 288 |
| Thr | Pro | Met | Glu | Val | Tyr | Leu | Gln | Leu | Met | Phe | Val | Lys | Phe | Arg | Tyr |     |

| 85  | 90                              | 95  |     |
|---|---------------------------------|-----|-----|
| cgg ctg ggc tat gag tcg ctg tgc                                 | cgg gag gtg gct gat tcg atc acc |     | 336 |
| Arg Leu Gly Tyr Glu Ser Leu Cys                                 | Arg Glu Val Ala Asp Ser Ile Thr |     |     |
| 100   | 105                             | 110 |     |
| tga   |                                 |     | 339 |
| <210> 7   |                                 |     |     |
| <211> 112   |                                 |     |     |
| <212> PRT   |                                 |     |     |
| <213> M. tuberculosis   |                                 |     |     |
| <400> 7   |                                 |     |     |
| Met Ile Pro Gly Arg Met Val Leu Asn Trp Glu Asp Gly Leu Asn Ala |                                 |     |     |
| 1   | 5                               | 10  | 15  |
| Leu Val Ala Glu Gly Ile Glu Ala Ile Val Phe Arg Thr Leu Gly Asp |                                 |     |     |
| 20  | 25                              | 30  |     |
| Gln Cys Trp Leu Trp Glu Ser Leu Leu Pro Asp Glu Val Arg Arg Leu |                                 |     |     |
| 35  | 40                              | 45  |     |
| Pro Glu Glu Leu Ala Arg Val Asp Ala Leu Leu Asp Asp Pro Ala Phe |                                 |     |     |
| 50  | 55                              | 60  |     |
| Phe Ala Pro Phe Val Pro Phe Phe Asp Pro Arg Arg Gly Arg Pro Ser |                                 |     |     |
| 65  | 70                              | 75  | 80  |
| Thr Pro Met Glu Val Tyr Leu Gln Leu Met Phe Val Lys Phe Arg Tyr |                                 |     |     |
| 85  | 90                              | 95  |     |
| Arg Leu Gly Tyr Glu Ser Leu Cys Arg Glu Val Ala Asp Ser Ile Thr |                                 |     |     |
| 100   | 105                             | 110 |     |
| <210> 8   |                                 |     |     |
| <211> 285   |                                 |     |     |
| <212> DNA   |                                 |     |     |
| <213> M. tuberculosis   |                                 |     |     |
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| <221> CDS   |                                 |     |     |
| <222> (1)...(285)   |                                 |     |     |
| <400> 8   |                                 |     |     |
| atg acc atc aac tat caa ttc ggg gac gtc gac gct cac ggc gcc atg |                                 |     | 48  |
| Met Thr Ile Asn Tyr Gln Phe Gly Asp Val Asp Ala His Gly Ala Met |                                 |     |     |
| 1   | 5                               | 10  | 15  |
| atc cgc gct cag gcc ggg tcg ctg gag gcc gag cat cag gcc atc att |                                 |     | 96  |
| Ile Arg Ala Gln Ala Gly Ser Leu Glu Ala Glu His Gln Ala Ile Ile |                                 |     |     |
| 20  | 25                              | 30  |     |
| tct gat gtg ttg acc gcg agt gac ttt tgg ggc ggc gcc ggt tcg gcg |                                 |     | 144 |
| Ser Asp Val Leu Thr Ala Ser Asp Phe Trp Gly Gly Ala Gly Ser Ala |                                 |     |     |
| 35  | 40                              | 45  |     |
| gcc tgc cag ggg ttc att acc cag ctg ggc cgt aac ttc cag gtg atc |                                 |     | 192 |
| Ala Cys Gln Gly Phe Ile Thr Gln Leu Gly Arg Asn Phe Gln Val Ile |                                 |     |     |
| 50  | 55                              | 60  |     |
| tac gag cag gcc aac gcc cac ggg cag aag gtg cag gct gcc ggc aac |                                 |     | 240 |
| Tyr Glu Gln Ala Asn Ala His Gly Gln Lys Val Gln Ala Ala Gly Asn |                                 |     |     |



|   |    |    |    |     |
|---|----|----|----|-----|
| 65  | 70 | 75 | 80 |     |
| aac atg gca caa acc gac agc gcc gtc ggc tcc agc tgg gcc taa     |    |    |    | 285 |
| Asn Met Ala Gln Thr Asp Ser Ala Val Gly Ser Ser Trp Ala         |    |    |    |     |
| 85  |    | 90 |    |     |
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| <211> 94  |    |    |    |     |
| <212> PRT   |    |    |    |     |
| <213> M. tuberculosis   |    |    |    |     |
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| <400> 9   |    |    |    |     |
| Met Thr Ile Asn Tyr Gln Phe Gly Asp Val Asp Ala His Gly Ala Met |    |    |    |     |
| 1 5 10 15   |    |    |    |     |
| Ile Arg Ala Gln Ala Gly Leu Leu Glu Ala Glu His Gln Ala Ile Val |    |    |    |     |
| 20 25 30  |    |    |    |     |
| Arg Asp Val Leu Ala Ala Gly Asp Phe Trp Gly Gly Ala Gly Ser Val |    |    |    |     |
| 35 40 45  |    |    |    |     |
| Ala Cys Gln Glu Phe Ile Thr Gln Leu Gly Arg Asn Phe Gln Val Ile |    |    |    |     |
| 50 55 60  |    |    |    |     |
| Tyr Glu Gln Ala Asn Ala His Gly Gln Lys Val Gln Ala Ala Gly Asn |    |    |    |     |
| 65 70 75 80   |    |    |    |     |
| Asn Met Ala Gln Thr Asp Ser Ala Val Gly Ser Ser Trp Ala         |    |    |    |     |
| 85 90   |    |    |    |     |
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| <210> 10  |    |    |    |     |
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| Met Thr Ile Asn Tyr Gln Phe Gly Asp Val Asp Ala His Gly Ala Met |    |    |    |     |
| 1 5 10 15   |    |    |    |     |
| <br>  |    |    |    |     |
| atc cgc gct cag gcc ggg ttg ctg gag gcg gag cat cag gcc atc gtt |    |    |    | 96  |
| Ile Arg Ala Gln Ala Gly Leu Leu Glu Ala Glu His Gln Ala Ile Val |    |    |    |     |
| 20 25 30  |    |    |    |     |
| <br>  |    |    |    |     |
| cgt gat gtg ttg gcc gcg ggt gac ttt tgg ggc ggc gcc ggt tcg gtg |    |    |    | 144 |
| Arg Asp Val Leu Ala Ala Gly Asp Phe Trp Gly Gly Ala Gly Ser Val |    |    |    |     |
| 35 40 45  |    |    |    |     |
| <br>  |    |    |    |     |
| gct tgc cag gag ttc att acc cag ttg ggc cgt aac ttc cag gtg atc |    |    |    | 192 |
| Ala Cys Gln Glu Phe Ile Thr Gln Leu Gly Arg Asn Phe Gln Val Ile |    |    |    |     |
| 50 55 60  |    |    |    |     |
| <br>  |    |    |    |     |
| tac gag cag gcc aac gcc cac ggg cag aag gtg cag gct gcc ggc aac |    |    |    | 240 |
| Tyr Glu Gln Ala Asn Ala His Gly Gln Lys Val Gln Ala Ala Gly Asn |    |    |    |     |
| 65 70 75 80   |    |    |    |     |
| <br>  |    |    |    |     |
| aac atg gca caa acc gac agc gcc gtc ggc tcc agc tgg gcc         |    |    |    | 282 |

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85 90

tga 285

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Arg Asp Val Leu Ala Ala Gly Asp Phe Trp Gly Gly Ala Gly Ser Val  
35 40 45  
Ala Cys Gln Glu Phe Ile Thr Gln Leu Gly Arg Asn Phe Gln Val Ile  
50 55 60  
Tyr Glu Gln Ala Asn Ala His Gly Gln Lys Val Gln Ala Ala Gly Asn  
65 70 75 80  
Asn Met Ala Gln Thr Asp Ser Ala Val Gly Ser Ser Trp Ala  
85 90

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aaa cgg gct gag tcg gga atg ctc ggc ggg ttg tcg gtt ccg ctc agc 96  
Lys Arg Ala Glu Ser Gly Met Leu Gly Gly Leu Ser Val Pro Leu Ser  
20 25 30  
  
tgg gga gtg gct gtg cca ccc gat gat tat gac cac tgg gcg cct gcg 144  
Trp Gly Val Ala Val Pro Pro Asp Asp Tyr Asp His Trp Ala Pro Ala  
35 40 45  
  
ccg gag gac ggc gcc gat gtc gat gtc cag gcg gcc gaa ggg gcg gac 192  
Pro Glu Asp Gly Ala Asp Val Asp Val Gln Ala Ala Glu Gly Ala Asp  
50 55 60  
  
gca gag gcc gcg gcc atg gac gag tgg gat gag tgg cag gcg tgg aac 240  
Ala Glu Ala Ala Ala Met Asp Glu Trp Asp Glu Trp Gln Ala Trp Asn  
65 70 75 80  
  
gag tgg gtg gcg gag aac gct gaa ccc cgc ttt gag gtg cca cgg agt 288  
Glu Trp Val Ala Glu Asn Ala Glu Pro Arg Phe Glu Val Pro Arg Ser  
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agc agc agc gtg att ccg cat tct ccg gcg gcc ggc tag  
 Ser Ser Ser Val Ile Pro His Ser Pro Ala Ala Gly  
 100 105

327

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 <212> PRT  
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 35 40 45  
 Pro Glu Asp Gly Ala Asp Val Asp Val Gln Ala Ala Glu Gly Ala Asp  
 50 55 60  
 Ala Glu Ala Ala Ala Met Asp Glu Trp Asp Glu Trp Gln Ala Trp Asn  
 65 70 75 80  
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 Ser Ser Ser Val Ile Pro His Ser Pro Ala Ala Gly  
 100 105

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 aac gcc ccg cgt cgg aat cgc gtt ggg cgg caa cat ggt tgg ccg gcc 96  
 Asn Ala Pro Arg Arg Asn Arg Val Gly Arg Gln His Gly Trp Pro Ala  
 20 25 30  
 gac gtt ccg tcc gcc gag cag cgc cgc gcc caa cgg cag cgc gac ctc 144  
 Asp Val Pro Ser Ala Glu Gln Arg Arg Ala Gln Arg Gln Arg Asp Leu  
 35 40 45  
 gag gct atc cgc cga gcg tac gcc gag atg gtg gcg aca tca cac gaa 192  
 Glu Ala Ile Arg Arg Ala Tyr Ala Glu Met Val Ala Thr Ser His Glu  
 50 55 60  
 atc gac gac gac aca gcc gaa ctg gcg ctg ttg tgc atg cat ctc gac 240  
 Ile Asp Asp Asp Thr Ala Glu Leu Ala Leu Leu Ser Met His Leu Asp  
 65 70 75 80

|   |     |
|---|-----|
| gat gag cag cgc cgg ctt gag gcg ggg atg aag ctc ggc tgg cat ccg | 288 |
| Asp Glu Gln Arg Arg Leu Glu Ala Gly Met Lys Leu Gly Trp His Pro |     |
| 85 90 95  |     |
|   |     |
| tat cac ttc ccc gac gaa ccc gac agc aaa cag tga                 | 324 |
| Tyr His Phe Pro Asp Glu Pro Asp Ser Lys Gln                     |     |
| 100 105   |     |
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| <211> 107   |     |
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| <213> M. tuberculosis   |     |
|   |     |
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| 1 5 10 15   |     |
| Asn Ala Pro Arg Arg Asn Arg Val Gly Arg Gln His Gly Trp Pro Ala |     |
| 20 25 30  |     |
| Asp Val Pro Ser Ala Glu Gln Arg Arg Ala Gln Arg Gln Arg Asp Leu |     |
| 35 40 45  |     |
| Glu Ala Ile Arg Arg Ala Tyr Ala Glu Met Val Ala Thr Ser His Glu |     |
| 50 55 60  |     |
| Ile Asp Asp Asp Thr Ala Glu Leu Ala Leu Leu Ser Met His Leu Asp |     |
| 65 70 75 80   |     |
| Asp Glu Gln Arg Arg Leu Glu Ala Gly Met Lys Leu Gly Trp His Pro |     |
| 85 90 95  |     |
| Tyr His Phe Pro Asp Glu Pro Asp Ser Lys Gln                     |     |
| 100 105   |     |
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| atg agc ggc cac gcg ttg gct gct cgg acg ttg ctg gcc gcc gcg gac | 48  |
| Met Ser Gly His Ala Leu Ala Ala Arg Thr Leu Leu Ala Ala Ala Asp |     |
| 1 5 10 15   |     |
|   |     |
| gag ctt gtc ggc ggc ccg cca gtc gag gct tcg gcc gcc gcg ctg gcc | 96  |
| Glu Leu Val Gly Gly Pro Pro Val Glu Ala Ser Ala Ala Ala Leu Ala |     |
| 20 25 30  |     |
|   |     |
| ggc gac gcc gcg ggc gca tgg cgg acc gcg gcc gtc gag ctt gcg cga | 144 |
| Gly Asp Ala Ala Gly Ala Trp Arg Thr Ala Ala Val Glu Leu Ala Arg |     |
| 35 40 45  |     |
|   |     |
| gcg ttg gtc cgc gct gtg gcg gag tcg cac ggc gtc gcg gcc gtt ttg | 192 |
| Ala Leu Val Arg Ala Val Ala Glu Ser His Gly Val Ala Ala Val Leu |     |
| 50 55 60  |     |
|   |     |
| ttc gcc gcg acg gcc gcc gcg gcg gcg gcc gtc gac cgg ggt gat ccg | 240 |

Phe Ala Ala Thr Ala Ala Ala Ala Ala Ala Val Asp Arg Gly Asp Pro  
65 70 75